AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. – 25. (Cancelled)

26. (Currently amended) A thin film piezoelectric transducer comprising:

a supporting base having a cavity formed therein;

a diaphragm disposed on said supporting base;

a piezoelectric film layer located above said cavity, said piezoelectric film layer having:

an upper surface which is not adjacent to said diaphragm; and

an end surface adjacent to said upper surface;

a first electrode layer and a second electrode layer disposed on said diaphragm;

a third electrode layer disposed on said piezoelectric film layer;

wherein said second electrode layer and said third electrode layer are spaced apart along said upper surface of said piezoelectric film layer;

said first electrode layer, said second electrode layer, and said third electrode layer independently contact said piezoelectric film layer; and

~~at least a part of one of said three electrode layers is disposed between said diaphragm and said piezoelectric film layer~~.

only a part of said first electrode layer of said three electrode layers is disposed between said diaphragm and said piezoelectric film layer.

27. (Previously presented) The thin film piezoelectric transducer, according to claim 26, wherein said supporting base wherein said cavity is formed is a single crystal silicon substrate.

28. (Previously presented) The thin film piezoelectric transducer, according to claim 26, wherein said diaphragm is formed of a zirconia thin film.

29. (Previously presented) The thin film piezoelectric transducer, according to claim 26, wherein said first, second, and third electrode layers are formed of a multilayered structure of platinum and titanium.

30. (Previously presented) The thin film piezoelectric transducer, according to claim 26, wherein said piezoelectric film layer is formed of a lead-titanate-zirconate piezoelectric material.

31. (Previously presented) The thin film piezoelectric transducer, according to claim 26, wherein an arbitrary voltage waveform is applied between said first electrode layer and said second electrode layer, and said arbitrary voltage waveform which has been amplified is output to between said first electrode layer and said third electrode layer.

32. (Currently amended) A thin film piezoelectric transducer comprising:

a supporting base having a cavity formed therein;

a diaphragm disposed on said supporting base;

a piezoelectric film layer located above said cavity;

a first electrode layer and a second electrode layer disposed on said diaphragm;

a third electrode layer disposed on said piezoelectric film layer;

wherein said second electrode layer and third electrode layer are disposed as a pair with a space therebetween on said piezoelectric film layer located above said cavity;

said first electrode layer, said second electrode layer, and said third electrode layer contact said piezoelectric film layer;

~~at least a part of one of said three electrode layers is disposed between said diaphragm and said piezoelectric film layer; and~~

only a part of said first electrode layer of said three electrode layers is disposed between said diaphragm and said piezoelectric film layer; and

said second and third electrode layers being positioned on a side of said piezoelectric film layer.

33. (Previously presented) The thin film piezoelectric transducer, according to claim 32, wherein said third electrode layer is formed to span an end surface and upper layer surface of said piezoelectric film layer.

34. (Previously presented) The thin film piezoelectric transducer, according to claim 32, wherein said supporting base wherein said cavity is formed is a single crystal silicon substrate.

35. (Previously presented) The thin film piezoelectric transducer, according to claim 32, wherein said diaphragm is formed of a zirconia thin film.

36. (Previously presented) The thin film piezoelectric transducer, according to claim 32, wherein said first, second, and third electrode layers are formed of a multilayered structure of platinum and titanium.

37. (Previously presented) The thin film piezoelectric transducer, according to claim 32, wherein said piezoelectric film layer is formed of a lead-titanate-zirconate piezoelectric material.

38. (Previously presented) The thin film piezoelectric transducer, according to claim 32, wherein an arbitrary voltage waveform is applied between said first electrode layer and said second electrode layer, and said arbitrary voltage waveform which has been amplified is output to between said first electrode layer and said third electrode layer.

39. (Currently amended) A thin film piezoelectric transducer comprising:

a supporting base having a cavity formed therein;

a diaphragm disposed on said supporting base;

a piezoelectric film layer located above said cavity;

a first electrode layer and a second electrode layer disposed on said diaphragm;

a third electrode layer disposed on said piezoelectric film layer;

wherein said second electrode layer and third electrode layer are disposed as a pair with a space therebetween on said piezoelectric film layer located above said cavity;

wherein said first electrode layer, said second electrode layer, and said third electrode layer contact said piezoelectric film layer;

~~at least a part of one of said three electrode layers is disposed between said diaphragm and said piezoelectric film layer; and~~

only a part of said first electrode layer of said three electrode layers is disposed between said diaphragm and said piezoelectric film layer; and

upon receiving a voltage, a characteristic of said piezoelectric film layer that amplifies an applied voltage amplifies said voltage.

40. (Previously presented) The thin film piezoelectric transducer, according to claim 39, wherein said third electrode layer is formed to span an end surface and upper layer surface of said piezoelectric film layer.

41. (Previously presented) The thin film piezoelectric transducer, according to claim 39, wherein said supporting base wherein said cavity is formed is a single crystal silicon substrate.

42. (Previously presented) The thin film piezoelectric transducer, according to claim 39, wherein said diaphragm is formed of a zirconia thin film.

43. (Previously presented) The thin film piezoelectric transducer, according to claim 39, wherein said first, second, and third electrode layers are formed of a multilayered structure of platinum and titanium.

44. (Previously presented) The thin film piezoelectric transducer, according to claim 39, wherein said piezoelectric film layer is formed of a lead-titanate-zirconate piezoelectric material.

45. (Previously presented) The thin film piezoelectric transducer, according to claim 39, wherein an arbitrary voltage waveform is applied between said first electrode layer and said second electrode layer, and said arbitrary voltage waveform which has been amplified is output to between said first electrode layer and said third electrode layer.

46. (Previously presented) The thin film transducer according to claim 39, wherein said voltage that is inputted or outputted is an alternating voltage.

47. (Currently amended) A thin film piezoelectric transducer comprising:

a supporting base having a cavity formed therein;

a diaphragm disposed on said supporting base;

a piezoelectric film layer located above said cavity;

a first electrode layer and a second electrode layer disposed on said diaphragm;

a third electrode layer disposed on said piezoelectric film layer;

wherein said second electrode layer and third electrode layer are disposed as a pair with a space therebetween on said piezoelectric film layer located above said cavity;

said first electrode layer, said second electrode layer, and said third electrode layer contact said piezoelectric film layer;

~~at least a part of one of said three electrode layers is disposed between said diaphragm and said piezoelectric film layer; and~~

only a part of said first electrode layer of said three electrode layers is disposed between said diaphragm and said piezoelectric film layer; and

said second and third electrode layers being positioned on one side of said piezoelectric film layer in a width direction of said cavity.

48. (Previously presented) The thin film piezoelectric transducer, according to claim 47, wherein said third electrode layer is formed to span an end surface and upper layer surface of said piezoelectric film layer.

49. (Previously presented) The thin film piezoelectric transducer, according to claim 47, wherein said supporting base wherein said cavity is formed is a single crystal silicon substrate.

50. (Previously presented) The thin film piezoelectric transducer, according to claim 47, wherein said diaphragm is formed of a zirconia thin film.

51. (Previously presented) The thin film piezoelectric transducer, according to claim 47, wherein said first, second, and third electrode layers are formed of a multilayered structure of platinum and titanium.

52. (Previously presented) The thin film piezoelectric transducer, according to claim 47, wherein said piezoelectric film layer is formed of a lead-titanate-zirconate piezoelectric material.

53. (Previously presented) The thin film piezoelectric transducer, according to claim 47, wherein an arbitrary voltage waveform is applied between said first electrode layer and said second electrode layer, and said arbitrary voltage waveform which has been amplified is output to between said first electrode layer and said third electrode layer.